Method and System for Label Edge Routing in a Wireless Network
Inventor: Holur, et al.
Attorney's Docket: 062891.0511
Sheet: 1 of 9 Filed: January 26, 2001

FIGURE 1

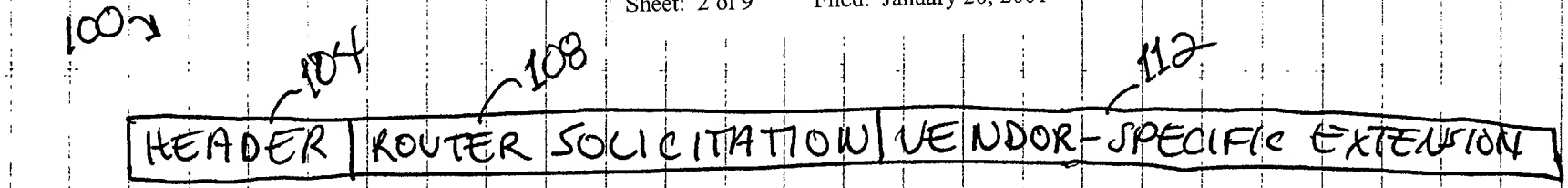

FIGURE 2A

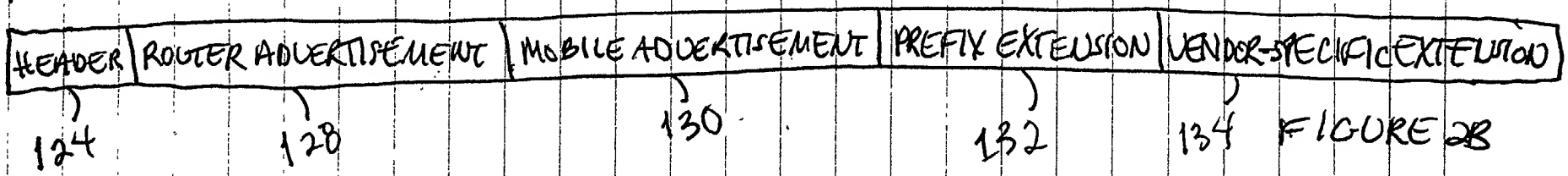

FIGURE 2B

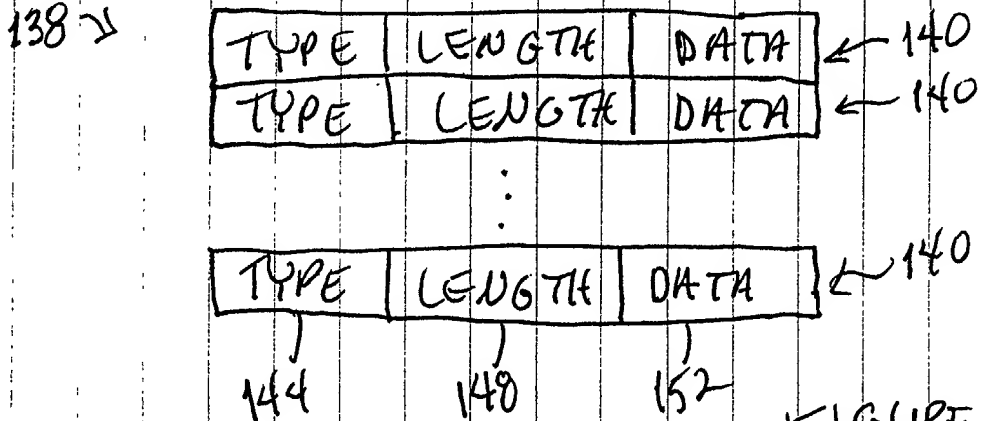

FIGURE 2C

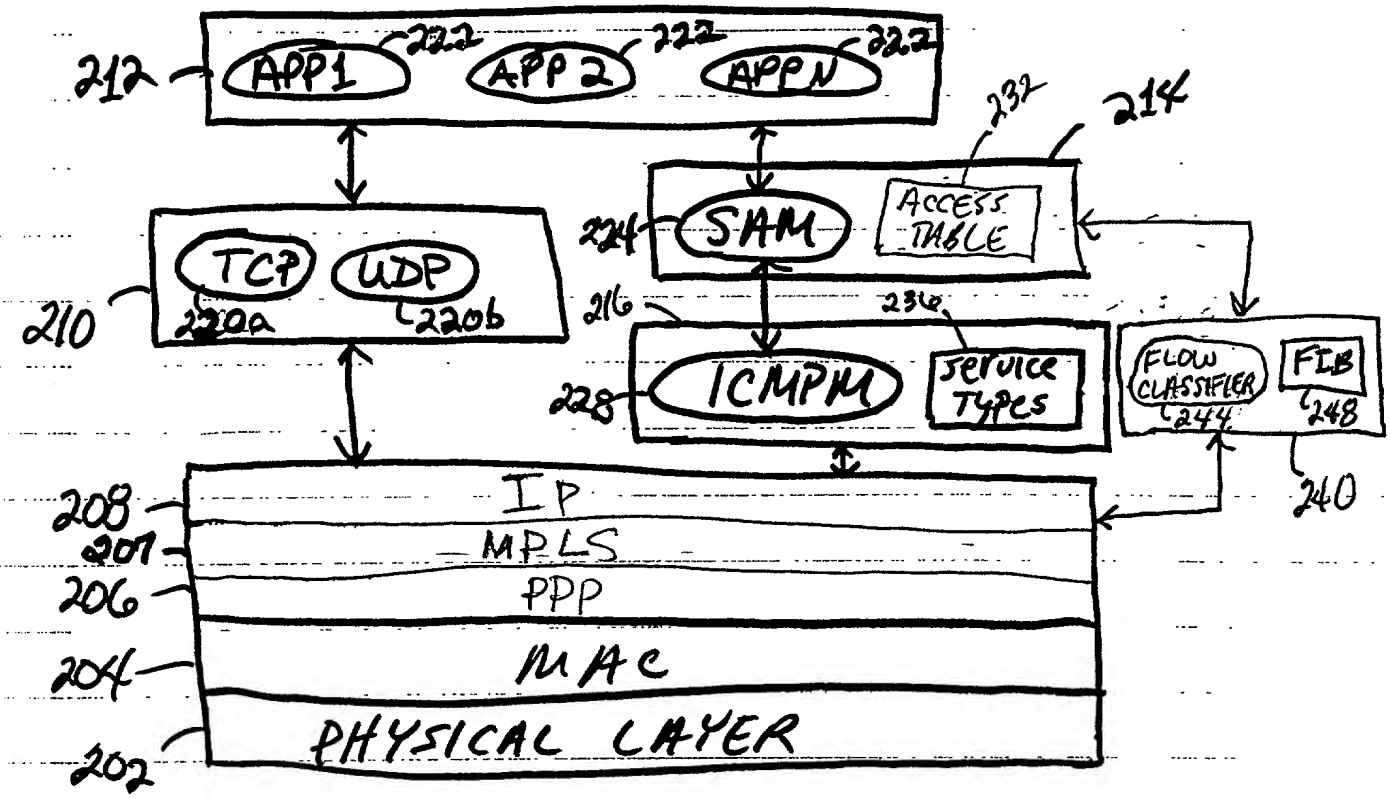
212
APP1
222
APP 2
222
APPN
222
232
214
224
SAM
ACCESS TABLE
TCP
UDP
210
220a
220b
216
230
ICMPM
228
Service Types
FLOW CLASSIFIER
244
FIB
248
240
208
IP
207
MPLS
206
PPP
204
MAC
202
PHYSICAL LAYER
200

FIGURE 3

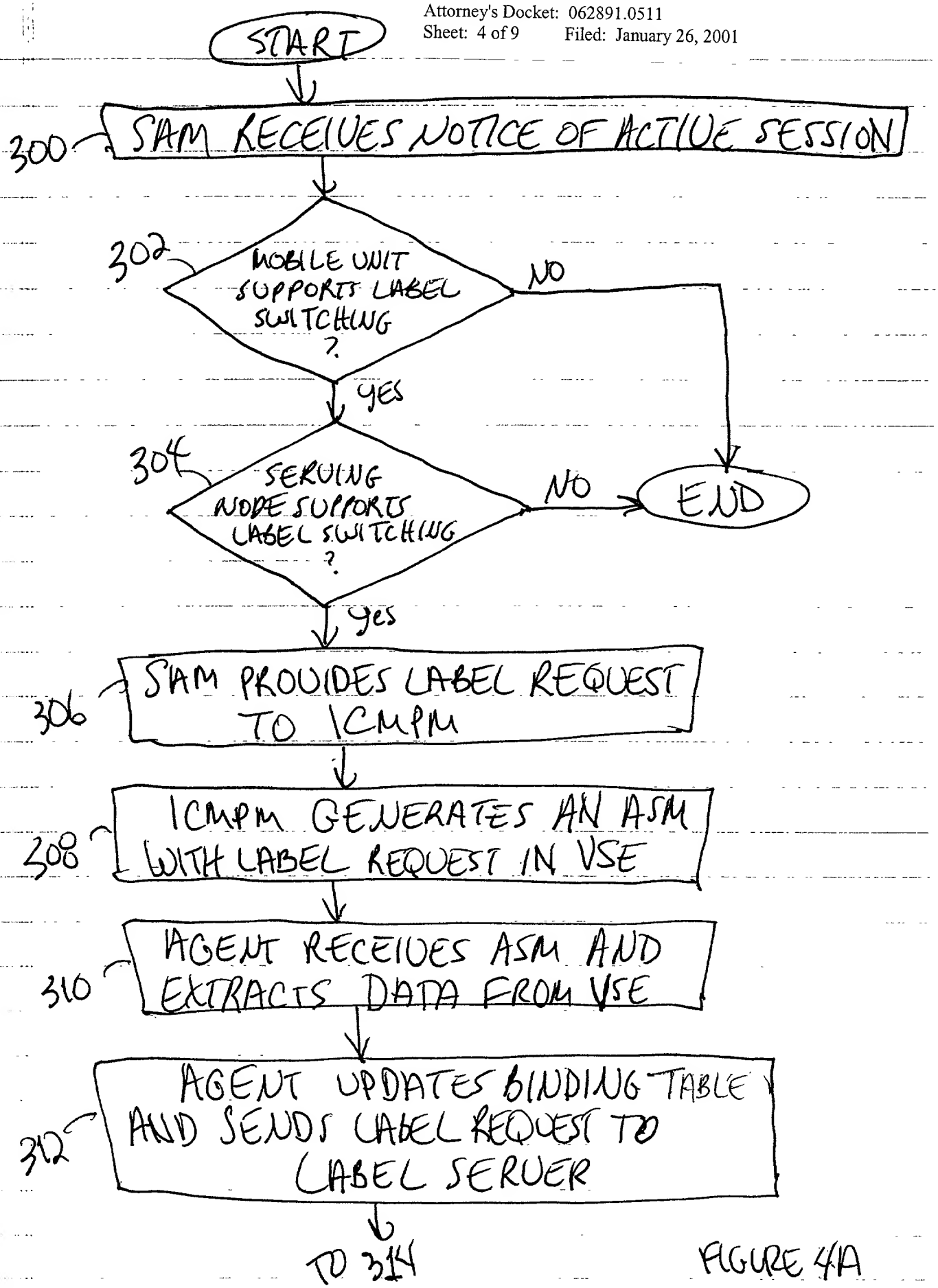
START
300
SAM RECEIVES NOTICE OF ACTIVE SESSION
302
MOBILE UNIT SUPPORTS LABEL SWITCHING ?
NO
YES
304
SERVING NODE SUPPORTS LABEL SWITCHING ?
NO
END
yes
306
SAM PROVIDES LABEL REQUEST TO ICMPM
308
ICMPM GENERATES AN ASM WITH LABEL REQUEST IN VSE
310
AGENT RECEIVES ASM AND EXTRACTS DATA FROM VSE
312
AGENT UPDATES BINDING TABLE AND SENDS LABEL REQUEST TO LABEL SERVER
TO 314

FIGURE 4A

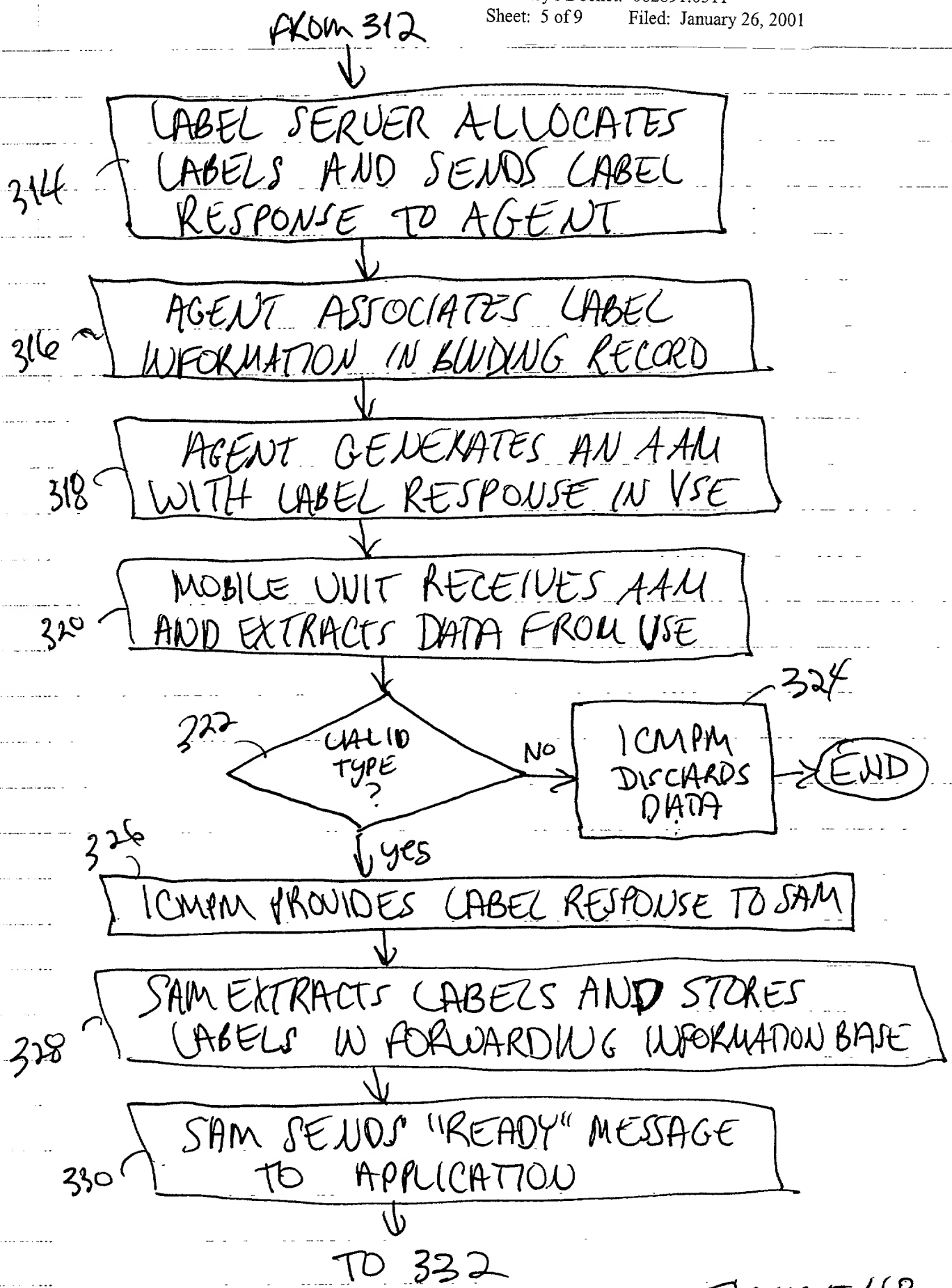
FROM 312
LABEL SERVER ALLOCATES LABELS AND SENDS LABEL RESPONSE TO AGENT
314
AGENT ASSOCIATES LABEL INFORMATION IN BINDING RECORD
316
AGENT GENERATES AN AAM WITH LABEL RESPOUSE IN VSE
318
MOBILE UNIT RECEIVES AAM AND EXTRACTS DATA FROM USE
320
VALID TYPE ?
322
NO
ICMPM DISCARDS DATA
324
END
yes
326
ICMPM PROVIDES LABEL RESPOUSE TO SAM
SAM EXTRACTS LABELS AND STORES LABELS IN FORWARDING INFORMATION BASE
328
SAM SENDS "READY" MESSAGE TO APPLICATION
330
TO 332

FIGURE 4B

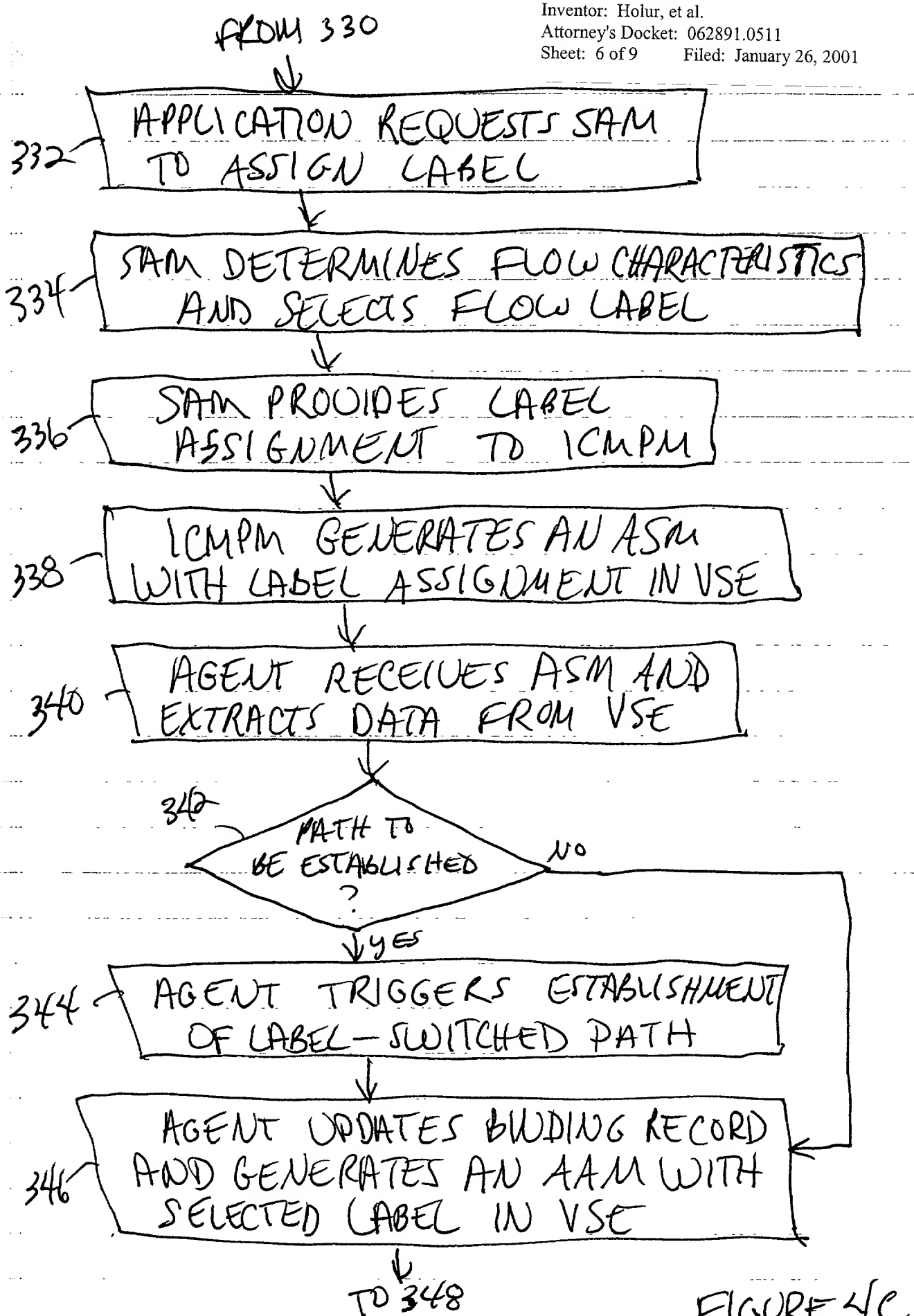
FROM 330
332
APPLICATION REQUESTS SAM TO ASSIGN LABEL
334
SAM DETERMINES FLOW CHARACTERISTICS AND SELECTS FLOW LABEL
336
SAM PROVIDES LABEL ASSIGNMENT TO ICMPM
338
ICMPM GENERATES AN ASM WITH LABEL ASSIGNMENT IN VSE
340
AGENT RECEIVES ASM AND EXTRACTS DATA FROM VSE
342
PATH TO BE ESTABLISHED ?
NO
YES
344
AGENT TRIGGERS ESTABLISHMENT OF LABEL-SWITCHED PATH
346
AGENT UPDATES BINDING RECORD AND GENERATES AN AAM WITH SELECTED LABEL IN VSE
TO 348

FIGURE 4C

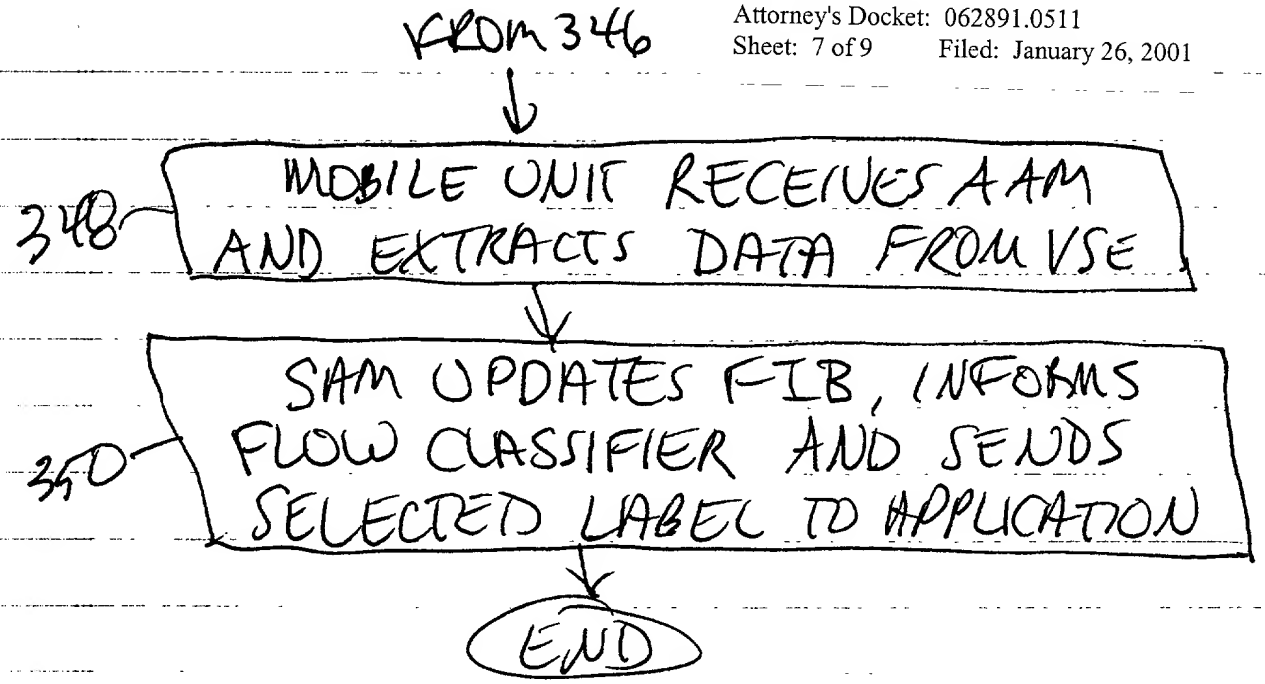
FROM 346
348
MOBILE UNIT RECEIVES AAM AND EXTRACTS DATA FROM VSE
350
SAM UPDATES FIB, INFORMS FLOW CLASSIFIER AND SENDS SELECTED LABEL TO APPLICATION
END

FIGURE 4D

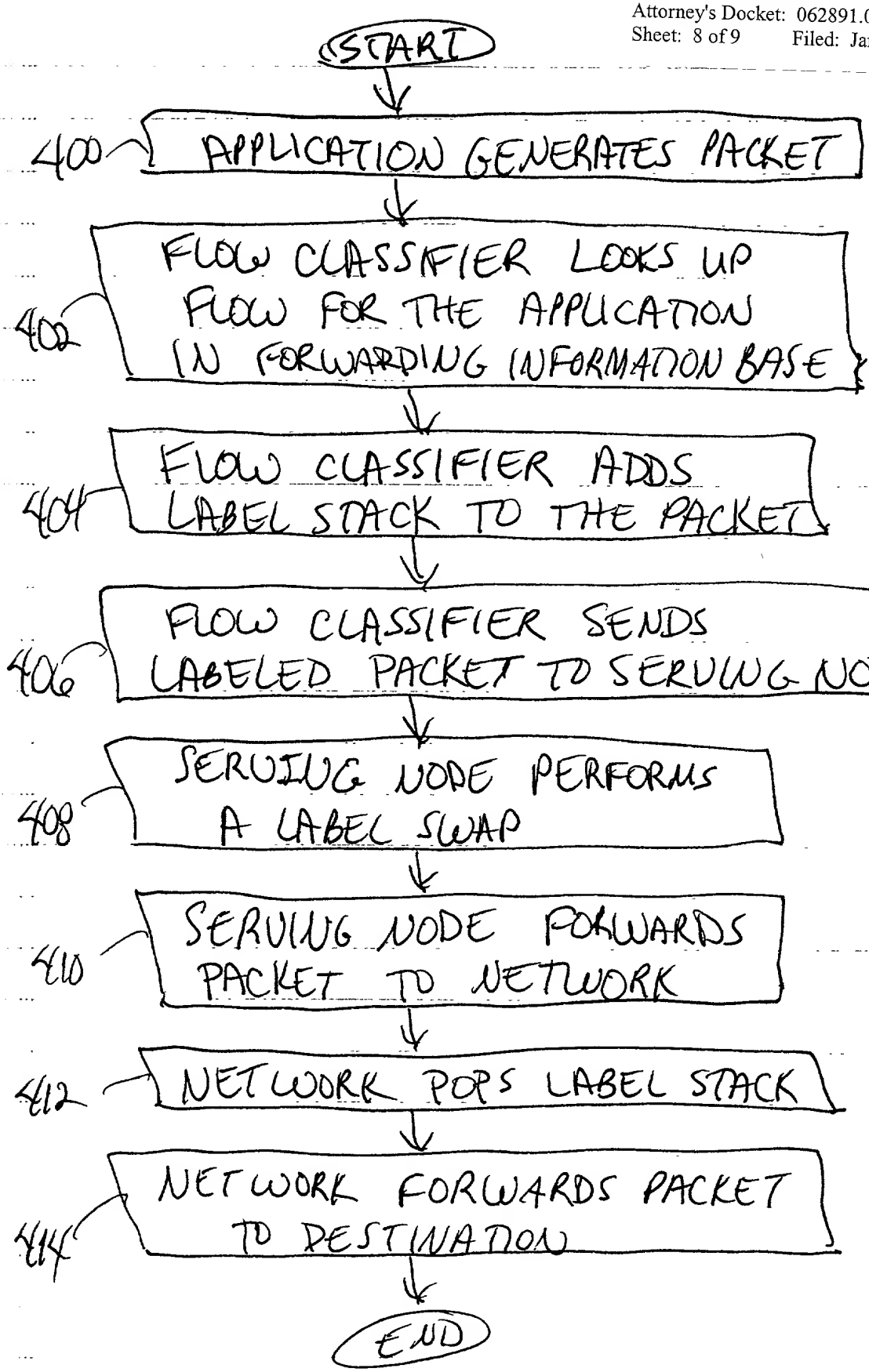
START
400
APPLICATION GENERATES PACKET
402
FLOW CLASSIFIER LOOKS UP FLOW FOR THE APPLICATION IN FORWARDING INFORMATION BASE
404
FLOW CLASSIFIER ADDS LABEL STACK TO THE PACKET
406
FLOW CLASSIFIER SENDS LABELED PACKET TO SERVING NODE
408
SERVING NODE PERFORMS A LABEL SWAP
410
SERVING NODE FORWARDS PACKET TO NETWORK
412
NETWORK POPS LABEL STACK
414
NETWORK FORWARDS PACKET TO DESTINATION
END

FIGURE 5

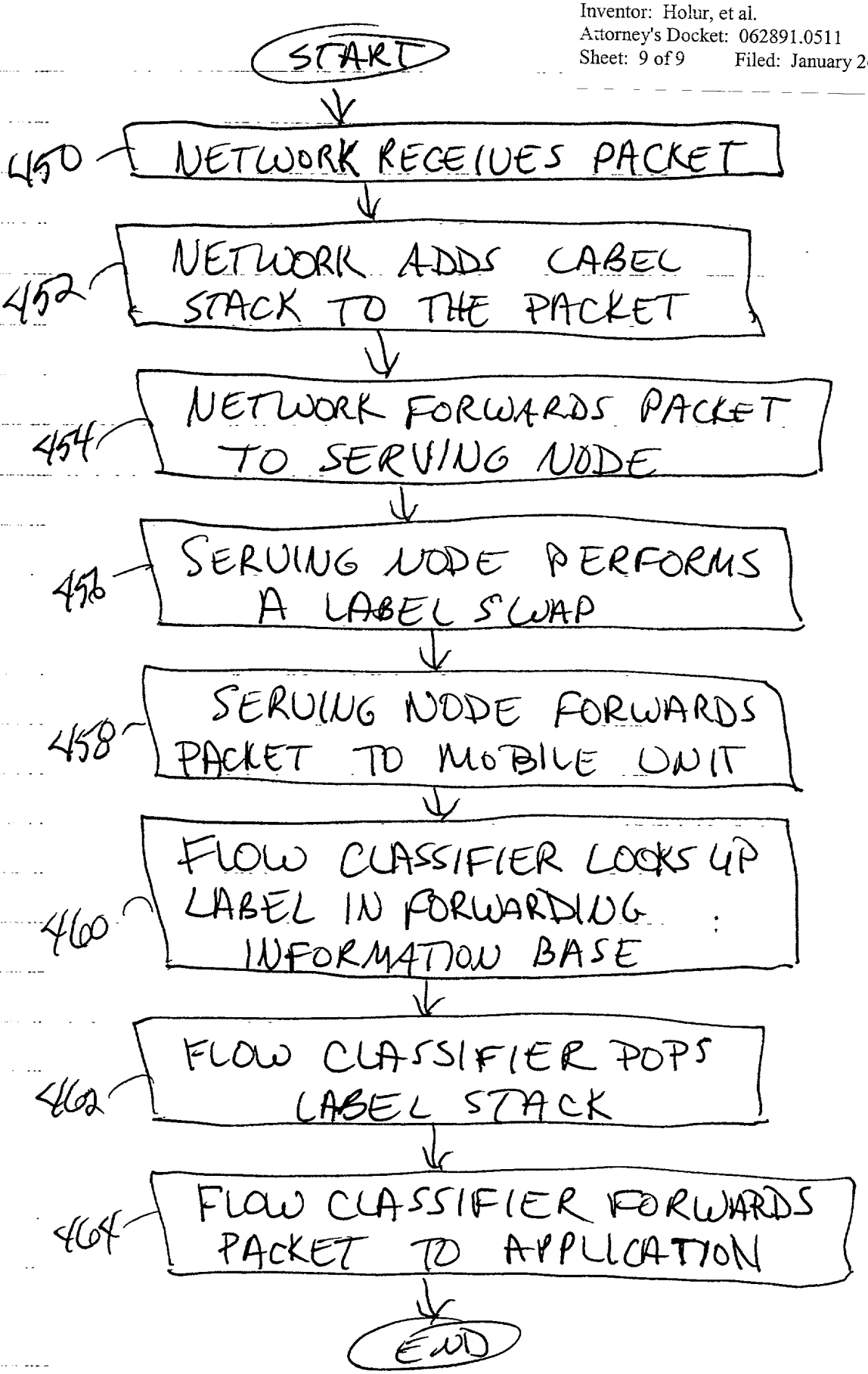
START
450
NETWORK RECEIVES PACKET
452
NETWORK ADDS CABEL STACK TO THE PACKET
454
NETWORK FORWARDS PACKET TO SERVING NODE
456
SERVING NODE PERFORMS A LABEL SWAP
458
SERVING NODE FORWARDS PACKET TO MOBILE UNIT
460
FLOW CLASSIFIER LOOKS UP LABEL IN FORWARDING INFORMATION BASE
462
FLOW CLASSIFIER POPS LABEL STACK
464
FLOW CLASSIFIER FORWARDS PACKET TO APPLICATION
END

FIGURE 6